




# Non-rash herpes Zoster mimicking cardiac chest pain: a case report

## *Dor torácica cardíaca mimetizada por Zoster sine herpete: relato de caso*

Raquel Fernandes de Barros<sup>\*1,2,3</sup>, Maria Eduarda Calsavara Coelho<sup>3</sup>, Filipe Henrique Almeida Barbosa Godoi<sup>3</sup>

### ABSTRACT

**Introduction:** Zoster Sine Herpete (ZSH), an atypical manifestation of herpes zoster, presents clinically only as neuralgia in the affected dermatome. This makes its identification challenging and can lead to inadequate therapy. Therefore, ZSH should be considered in the differential diagnosis of indeterminate neuropathic pain. **Objectives:** To draw attention to the diagnosis of ZSH in cases of non-cardiac chest pain by highlighting the importance of characterizing different pain types. **Methods:** This is a retrospective, observational, and descriptive case report. **Results:** A 58-year-old male, D.M.G., sought hospital care for a 2-hour history of chest pain in the left hemithorax, with irradiation to the back and ipsilateral upper limb. An initial ECG was normal. Clinical evaluation further characterized the pain as continuous, burning, and of sudden onset following sun exposure, well-demarcated in the T2 dermatome, with allodynia. The patient denied any aggravating or relieving factors. He is a former smoker (30 pack-years). The physical examination was unremarkable, and serial Troponin I and ECGs were within normal limits. Based on these findings, a HEART score of < 3 points was calculated, classifying the pain as non-ischemic (Type C). Additionally, leukocytosis with a left shift and elevated CRP were observed, suggesting an infectious etiology, specifically ZSH, given the presence of allodynia. Empirical treatment with famciclovir and optimized analgesia was initiated, with outpatient follow-up. The diagnosis was later confirmed by positive IgM and IgG serology for Varicella-Zoster Virus. **Conclusion:** Given the high incidence and etiological diversity of chest pain, a thorough investigation is imperative. It is crucial for clinicians to accurately characterize the pain type, thereby narrowing the differential diagnoses, optimizing resource utilization, and ensuring prompt treatment.

**Keywords:** Herpes Zoster; *Zoster Sine Herpete*; Chest Pain; Pain.

<sup>1</sup> Rede Mater Dei de Saúde, Belo Horizonte, MG, Brazil.

<sup>2</sup> Hospital Metropolitanou Doutor Célio de Castro, Belo Horizonte, MG, Brazil.

<sup>3</sup> Faculdade de Minas (FAMINAS-BH), MG, Brazil.

#### Associate Editor Responsible:

Enio Roberto Pietra Pedrosa  
Faculdade de Medicina da  
Universidade Federal de Minas Gerais.  
Belo Horizonte, MG, Brazil.

#### Corresponding author:

Raquel Fernandes de Barros  
Faculdade de Minas (FAMINAS-BH),  
MG, Brazil.  
Email: raquel.barros@professor.faminas.edu.br

#### Supporting sources:

None.

#### Conflicts of interest:

None.

Received on: July 4<sup>th</sup>, 2025.

Approved on: September 28<sup>th</sup>, 2025.

Publication Date: March 18<sup>th</sup>, 2026.

DOI: 10.5935/2238-3182.2025e35412-en

## RESUMO

**Introdução:** *Zoster Sine Herpete* (ZSH), manifestação atípica do herpes-zóster, apresenta-se, clinicamente, apenas como neuralgia do dermatomo acometido, tornando sua identificação desafiadora, com possível terapêutica inadequada. Portanto, esta condição deve ser considerada no diagnóstico diferencial em casos de dor neuropática indeterminada.

**Objetivos:** Chamar atenção para diagnóstico de ZSH em dores torácicas não cardíacas, a partir do estudo dos diferentes tipos de dor. **Métodos:** Relato de caso retrospectivo e observacional descritivo. **Resultados:** D.M.G, 58 anos, procura assistência hospitalar devido à dor torácica em hemitórax esquerdo com irradiação dorsal e para membro superior ipsilateral iniciada há 02 horas. Realizado ECG à triagem, dentro da normalidade. Consulta clínica com definição algica mais precisa de dor contínua, de surgimento súbito após exposição solar, em queimação, bem delimitada em dermatomo T2, com alodínia. Nega fatores de piora ou melhora. Ex-tabagista (30 anos/maço). Exame físico inocente, Troponina I e ECG seriados dentro dos limites de normalidade. Diante dos achados, calculou-se escore *HEART* <3 pontos – dor tipo C. Ainda, foi observada leucocitose com desvio à esquerda e aumento da PCR, apontando para causa infecciosa, mais especificamente ZSH em razão da alodínia. Iniciado tratamento empírico com famciclovir, analgesia otimizada e acompanhamento ambulatorial, com confirmação diagnóstica por sorologias IgM e IgG para varicela-zóster. **Conclusão:** Dada a alta incidência e diversidade etiológica da dor torácica, é imprescindível a sua investigação criteriosa. Exige-se que o clínico identifique o tipo de dor, limitando o leque de hipóteses diagnósticas, otimizando o emprego de recursos e estabelecendo pronto tratamento.

**Palavras-chave:** Herpes Zoster; *Zoster Sine Herpete*; Dor no peito; Dor.

## INTRODUCTION

The Varicella-Zoster Virus (VZV) is the causative agent of varicella, commonly known as chickenpox, and herpes zoster, also known as shingles<sup>1,2</sup>. The primary infection causes varicella, a common childhood disease characterized by a pruritic, polymorphic rash evolving from vesicles to pustules and then crusts<sup>1</sup>. Subsequently, the virus migrates via retrograde axonal transport and establishes latency in the dorsal root ganglia, where it can be reactivated under certain conditions, such as immunosuppression<sup>2,3</sup>. When reactivated, it causes Herpes Zoster (HZ), a condition more common with advancing age<sup>1</sup>. HZ typically manifests as a painful vesicular rash restricted to the affected dermatome, due to the involvement of sensory nerves<sup>1,3,4</sup>. However, another form of manifestation exists: *Zoster Sine Herpete* (ZSH)<sup>5</sup>, which presents atypically, with only neuralgia in the affected dermatome<sup>1,5</sup>. This makes the diagnosis challenging<sup>5,6</sup>. Allodynia—defined as "pain due to a stimulus that does not normally provoke pain"—is a

common symptom of neuropathies resulting from abnormal signaling<sup>7</sup>. Pain itself is a subjective experience and therefore difficult to treat<sup>8</sup>; neuropathic pain, in this context, presents an even greater diagnostic challenge, often with a non-definitive diagnosis and limited treatment efficacy.

Studies conducted in 2023 suggest that up to 95% of the global population over 40 has been exposed to VZV<sup>9</sup>. Considering that in Brazil, vaccination for 15-month-old children was only introduced in the national immunization program in September 2013<sup>10</sup>, these data pertain to direct pathogenic exposure rather than vaccine-induced seroconversion. Furthermore, a study in Brazil showed an increase in HZ cases during the COVID-19 pandemic across all age groups, including in immunocompetent patients<sup>11</sup>. From this perspective, the majority of the global population is susceptible not only to HZ but also to ZSH<sup>6</sup>. Although ZSH is a rare presentation of the virus's reactivation, it is essential that it receives due attention in

cases of neuropathic pain of undetermined origin in order to prevent complications<sup>5,6</sup>.

## OBJECTIVE

This study aims to draw attention to the diagnosis of *Zoster Sine Herpete* (ZSH) in cases of non-cardiac chest pain, through the analysis of different pain types: neuropathic, nociplastic, nociceptive, and mixed.

## METHOD

This is an observational, retrospective, and descriptive study presented as a case report. The patient was informed about the scientific nature of the study and voluntarily consented to the anonymous and confidential publication of his clinical information. The Informed Consent Form (ICF) was obtained and filed, in accordance with the international ethical guidelines for research involving human subjects (Declaration of Helsinki) and Resolution No. 466/12 of the National Health Council of Brazil. Clinical information was collected from the electronic medical record of a private practice in Belo Horizonte, Brazil, including demographic data, personal history, physical examination, laboratory and imaging tests, as well as outpatient clinical follow-up.

A literature review was conducted using the PubMed and UpToDate databases, searching for national and international publications with the MeSH/DeCS descriptors: Herpes Zoster, Zoster Sine Herpete, Chest Pain, and Pain. Hospital protocols were also consulted. Studies were filtered by publication date (last 10 years), language (Portuguese and English), and full-text availability. The selection was performed by reading titles and abstracts. Additional studies were included based on interest and relevance.

## RESULTS

A 58-year-old male, D.M.G., a married lawyer with two children, presented to the Emergency Department of a hospital in Belo Horizonte, accompanied by his spouse, complaining of left-sided chest pain with irradiation to the back and the ipsilateral upper limb, which had started 2 hours prior. He reported no improvement with 1g of dipyrone taken at home. An electrocardiogram (ECG) was performed at triage, as per institutional protocol, showing: sinus rhythm, heart rate of 70 bpm, P wave present and positive in all leads and negative in aVR. Wide QRS complex, electrical axis at 45°; PR interval of 0.15s; corrected QT interval of 400 ms; isoelectric ST segment. T wave was positive in all leads except aVR. No pathological Q waves were present.

Given the normal ECG findings, a clinical consultation was conducted, which provided a more precise characterization of the pain: continuous, burning, of sudden onset after sun exposure, well-demarcated in the T2 dermatome, with irradiation to the medial aspect of the left arm, and associated with allodynia. The patient denied any aggravating or relieving factors and reported no other complaints.

The patient was previously healthy, denied daily use of medications, and was overweight, undergoing lifestyle changes for the past 2 months with nutritional and personal trainer support following a prior cardiological evaluation. He is a former smoker (30 pack-years) with 8 years of abstinence and reports social alcohol consumption. The physical examination was unremarkable. Serial laboratory tests, including Troponin I, and repeat ECGs were ordered, with all results remaining within normal limits.

Based on the clinical and laboratory findings, the HEART score was calculated as <3 (History 1 / ECG 0 / Age 1 / Risk factors 0 / Troponin 0), classifying the chest pain as Type C (likely non-anginal). This, combined with leukocytosis with a left shift and a C-Reactive Protein (CRP) of 80 mg/L, raised the suspicion of an infectious etiology. Zoster Sine Herpete was considered highly probable due to the clinical finding of allodynia. Serology for Varicella-Zoster Virus (VZV IgM and IgG) was requested, and empirical treatment was initiated with famciclovir 500 mg every 8 hours for 7 days, along with optimized analgesia using dipyrone 1g every 6 hours and codeine 30 mg every 8 hours, which was maintained for the first month with sequential follow-up.

At an outpatient follow-up appointment, the patient's serology results were positive for VZV IgM and IgG, confirming the diagnosis. However, he reported persistent pain and allodynia. A combination therapy was proposed, including topical 5% lidocaine patches (Toperma) for nocturnal use at 12-hour intervals (patch applied for 12 hours, then removed, with a new patch applied after a 12-hour interval)—a treatment made possible by the absence of skin lesions—and carbamazepine 200 mg every 8 hours. The latter was poorly tolerated due to excessive daytime sleepiness and was subsequently replaced with pregabalin 150 mg every 12 hours, with the addition of duloxetine 60 mg in the morning. The patient was followed by the Pain Medicine service for six months. He self-discontinued the lidocaine patches after 40 days due to the high cost of the medication. Pregabalin 150 mg every 12 hours was tapered and discontinued under medical guidance after 60 days due to persistent daytime sleepiness. For the last four months of follow-up, he was maintained on duloxetine 60 mg/day monotherapy, achieving subtotal pain relief (VAS 2/10), after which he was lost to follow-up.

## DISCUSSION

Chest pain is one of the most frequent reasons for seeking emergency care, accounting for 5% to 10% of Emergency Department visits and up to 40% of hospital admissions<sup>12,13</sup>. Furthermore, it is an extremely challenging symptom due to the wide variety of possible differential diagnoses<sup>12</sup>. Acute Coronary Syndrome (ACS) is responsible for one-fifth of chest pain cases and is associated with significant morbidity and mortality, thus mandating a priority approach<sup>12,13</sup>.

Therefore, the aforementioned patient was appropriately managed under the ACS protocol due to his pain pattern and

high cardiovascular risk, which warranted a complementary workup with serial ECGs and laboratory tests including cardiac enzymes. Once this diagnosis was excluded, differential diagnoses were considered, and a more in-depth characterization of the pain was performed. This revealed a well-demarcated pain following the T2 dermatome, with the presence of allodynia.

As observed, a precise pain assessment is of utmost importance for diagnosis, as it provides information about the severity of the condition and guides appropriate treatment<sup>14</sup>. Consequently, a thorough understanding of its pathophysiological mechanisms is essential, which includes differentiating between its types: nociceptive, neuropathic, nociplastic, and mixed. Nociceptive pain occurs due to actual or threatened tissue damage that activates nociceptors, with the signal being interpreted by the central nervous system (CNS). However, when this stimulation is chronic and untreated, central sensitization can occur, leading to pain even without direct stimuli<sup>15</sup>. It is subclassified as somatic (stimuli in cutaneous tissues) and visceral (deep tissues), and is often characterized as a squeezing or pressure-like sensation that is poorly localized and referred<sup>15</sup>, as seen in cases of chest pain of anginal origin. Neuropathic pain, in turn, is caused by a lesion or disease of the somatosensory nervous system<sup>16</sup> and is frequently associated with allodynia. Nociplastic pain was first described in 2017 by the International Association for the Study of Pain (IASP) as

"pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage"<sup>17</sup>, being a pain of central origin and undefined cause. Finally, mixed pain is a pain syndrome characterized by the overlap of neuropathic and nociceptive symptoms in the same body area; a classic example is cancer pain, where, in addition to direct structural injury, there is an impairment of the somatosensory system due to medication-induced toxicity.

Based on this, the differential diagnoses of chest pain were summarized in the Table 1 below.

In the presented case, after excluding other differential diagnoses, a complete blood count and acute-phase reactants were requested, and the results suggested an infection. Combined with the clinical findings, this justified further investigation with serological markers and the initiation of empirical therapy.

## CONCLUSION

Since pain—the sole manifestation of ZSH—is subjective and at times underestimated, this case supports the notion that the pathology is underdiagnosed<sup>6</sup>. Therefore, a thorough investigation is of paramount importance, requiring the clinician to identify the pain pattern in order to broaden the spectrum of differential diagnoses, thereby providing personalized care and effective health solutions.

**Table 1.** Different Diagnosis of Chest Pain.

DIAGNOSTIC HYPOTHESIS	CLINICAL MANIFESTATIONS	TYPE OF PAIN
Acute Coronary Syndrome (ACS)	Retrosternal chest pain, precipitated by exertion or physical exercise and relieved by rest or nitrate, which radiates to the neck, jaw, shoulder, or left arm <sup>18</sup> .	Nociceptive Pain
Pericarditis	Retrosternal pleuritic chest pain that worsens with deep inspiration, coughing, and supine position and improves with leaning forward. Pericardial friction on physical examination <sup>12</sup> .	Nociceptive Pain
Gastroesophageal Reflux Disease (GERD)	Retrosternal burning sensation, which may be associated with regurgitation, which worsens after eating and improves with antacids <sup>19</sup> .	Nociceptive Pain
Fibromyalgia	Chronic musculoskeletal pain, presenting with muscle and joint pain, diffuse hyperalgesia and/or allodynia <sup>20</sup> .	Nociplastic Pain
Zoster Sine Herpete	Unilateral, radicular or localized pain, which may be deep, stabbing or twisting (sclerotomal pain), or a superficial burning pain in or near the skin (dermatomal pain). There is presence of allodynia <sup>5</sup> .	Neuropathic Pain
Postherpetic neuralgia	Pain that ranges from mild to extremely intense, and can be debilitating, can last for more than a year, and is described as throbbing or burning. There is presence of allodynia <sup>16</sup> .	Neuropathic Pain
Chest cancer pain	Intense pain, with sudden onset with a peak in 5 minutes, known as incidental pain, increasing with advancing disease, occurring in voluntary situations (movement or change of position) and in involuntary situations (defecating and urinating), poorly tolerated by patients <sup>15</sup> .	Mixed Pain

## AUTHOR'S CONTRIBUTIONS

We describe contributions to the papers using the taxonomy (CRediT) provided above:

*Investigation, Methodology, Supervision & Writing – review & editing:* RF de Barros. *Writing – original draft:* MEC Coelho; FHAB Godoi.

## COPYRIGHT

Copyright© 2021 Barros et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original article is properly cited.

## REFERENCES

- Kennedy PGE, Gershon AA. Clinical features of varicella-zoster virus infection. *Viruses* [Internet]. 2018; [cited 2024 Mar 23]; 10(11):609. Available from: <https://www.mdpi.com/1999-4915/10/11/609>.
- Arvin AM. Varicella-zoster virus. *Clin Microbiol Rev* [Internet]. 1996; [cited 2024 Mar 23]; 9(3). Available from: <https://journals.asm.org/doi/10.1128/CMR.9.3.361>.
- Albrecht MA, Levin MJ. Treatment of herpes zoster. *UpToDate* [Internet]. 2023; [cited 2024 Mar 23]. Available from: <https://www.uptodate.com/contents/treatment-of-herpes-zoster-in-the-immunocompetent-host#H344959>.
- Albrecht MA, Levin MJ. Epidemiology, clinical manifestations, and diagnosis of herpes zoster. *UpToDate* [Internet]. 2022; [cited 2024 Mar 23]. Available from: <https://www.uptodate.com/contents/epidemiology-clinical-manifestations-and-diagnosis-of-herpes-zoster?csi=488ac7a5-b9ef-4644-890e-fa83865311e0&source=contentShare#>.
- Zhou J, Li J, Ma L, Cao S. Zoster sine herpette: a review. *Korean J Pain* [Internet]. 2020; [cited 2024 Mar 23]; 33(3):208-15. Available from: <https://pubmed.ncbi.nlm.nih.gov/32606265/>.
- Yang Y, Mahmood T, Siddiqui AH, Aziz MA. Zoster sine herpette: two unusual cases of varicella-zoster reactivation with atypical complaints of acute chest pain and severe headache. *BMC Infect Dis* [Internet]. 2023; [cited 2024 Mar 23]; 23(1):239. Available from: <https://pubmed.ncbi.nlm.nih.gov/37072696/>.
- Viswanath O, Urits I, Burns J, Charipova K, Gress K, McNally A, et al. Central neuropathic mechanisms in pain signaling pathways: current evidence and recommendations. *Adv Ther* [Internet]. 2020; [cited 2024 Mar 23]; 37(5):1946-59. Available from: <https://pubmed.ncbi.nlm.nih.gov/32291648/>.
- Giordano J, Abramson K, Boswell MV. Pain assessment: subjectivity, objectivity, and the use of neurotechnology. *Pain Physician* [Internet]. 2010; [cited 2024 Mar 23]; 13(4):305-15. Available from: <https://pubmed.ncbi.nlm.nih.gov/20648198/>.
- Oliveira GEA, Silva IMC. Herpes zoster em idosos: uma visão acerca da prevenção. ID on line. *Rev Psi* [Internet]. 2023; [cited 2024 Mar 23]; 17(66). Available from: <https://idonline.emnuvens.com.br/id/article/view/3732>.
- Kalil I. Pesquisador esclarece dúvidas sobre a catapora, doença que agora tem vacina disponível no SUS. *Agência FioCruz de Notícias* [Internet]. 2013; [cited 2024 Mar 23]. Available from: <https://agencia.fiocruz.br/pesquisador-esclarece-d%C3%BAvidas-sobre-catapora-doen%C3%A7a-que-agora-tem-vacina-dispon%C3%ADvel-no-sus>.
- Algaadi SA. Herpes zoster and COVID-19 infection: a coincidence or a causal relationship? *Infection* [Internet]. 2022; [cited 2024 Mar 23]; 50:289-93. Available from: <https://link.springer.com/article/10.1007/s15010-021-01714-6>.
- Santos ES, Timerman A. Dor torácica na sala de emergência: quem fica e quem pode ser liberado? *Rev Soc Cardiol (S Paulo)* [Internet]. 2018; [cited 2024 Mar 23]; 28(4):394-402. Disponível em: <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-970499>.
- Hospital IGESP. Protocolo de Dor Torácica [Internet]. 2022; [access in 2024 Mar 23]. Disponível em: <https://hospitaligesp.com.br/wp-content/uploads/2022/02/006-007-Protocolo-de-Dor-Tora%CC%81cica.pdf>.
- Fillingim RB, Loeser JD, Ralf B, Edwards RR. Assessment of chronic pain: domains, methods, and mechanisms. *J Pain* [Internet]. 2016; [cited 2024 Mar 23]; 17(9):10-20. Available from: [https://www.jpain.org/article/S1526-5900\(15\)00865-2/fulltext](https://www.jpain.org/article/S1526-5900(15)00865-2/fulltext).
- Cardoso MGM. Classificação, fisiopatologia e avaliação da dor. *Manual de Cuidados Paliativos* [Internet]. 2. ed. 2012; [cited 2024 Mar 23]; 113-22. Available from: [https://paliativo.org.br/biblioteca/09-09-2013\\_Manual\\_de\\_cuidados\\_paliativos\\_ANCP.pdf#page=113](https://paliativo.org.br/biblioteca/09-09-2013_Manual_de_cuidados_paliativos_ANCP.pdf#page=113).
- Cavalli E, Mammanna S, Nicoletti F, Bramanti P, Mazzon E. The neuropathic pain: an overview of the current treatment and future therapeutic approaches. *Int J Immunopathol Pharmacol* [Internet]. 2019; [cited 2024 Mar 23]; 33. Available from: <https://journals.sagepub.com/doi/10.1177/2058738419838383>.
- Trouvin AP, Perrot S. New concepts of pain. *Best Pract Res Clin Rheumatol* [Internet]. 2019; [cited 2024 Mar 23]; 33(3). Available from: <https://www.sciencedirect.com/science/article/pii/S1521694219300610?via%3Dihub>.
- Nicolau JC, Filho GSF, Petriz JL, Furtado HM, Precoma DB, Lemke W, et al. Diretrizes da Sociedade Brasileira de Cardiologia sobre Angina Instável e Infarto Agudo do Miocárdio sem Supradesnível do Segmento ST – 2021. *Arq Bras Cardiol* [Internet]. 2021; [cited 2025 Sep 18]; 117(1):181-264. Available from: <https://abccardiol.org/article/diretrizes-da-sociedade-brasileira-de-cardiologia-sobre-angina-instavel-e-infarto-agudo-do-miocardio-sem-supradesnivel-do-segmento-st-2021/>.

19. Gyawali CP, Yadlapati R, Fass R, Katzka D, Pandolfino J, Savarino E, Sifrim D. Updates to the modern diagnosis of GERD: Lyon consensus 2.0. *Gut* [Internet]. 2024; [cited 2025 Sep 18]; 73(2):361-71. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10846564/>.
20. Siracusa R, Paola RD, Cuzzocrea S, Impelizzeri D. Fibromyalgia: pathogenesis, mechanisms, diagnosis and treatment options update. *Int J Mol Sci* [Internet]. 2021; [cited 2025 Sep 18]; 22(8):3891. Available from: <https://www.mdpi.com/1422-0067/22/8/3891>.



This is an open access article distributed under the terms of the Creative Commons Attribution License.